

### **REMARKS**

Applicant respectfully requests reconsideration of this application in view of the amendments and remarks made herein.

Claim 35 has been canceled.

Claims 1-4, 22-24, 28-29, and 35- 38 have been amended, as discussed in detail herein. No new matter has been added by these claims amendments.

New claims 39-45 have been added. Applicant respectfully submits that the present new claims are drawn to the previously elected groups and are supported by the original disclosure of this application. As such, no new matter has been added by these claims.

Claims 1-4, 22-24, 28-29, 31, 33-34, 36-38, and 39-45 are currently pending.

### **Priority**

Applicant will submit a corrected claim of priority to UK application No. 0025217.1 filed October 14, 2000 and a certified copy of the correct foreign priority application with a petition and the required fee.

### **Claim Rejections**

#### **1. 35 U.S.C. § 112, first paragraph**

##### **a. Claims Are Enabled to Person of Skill in the Art to Practice the Invention**

The Examiner rejected claims 1-4, 7-9, 27-29, 31, 33 and 35-38 as not enabled for a method that employs any part of the coding sequence of a mature PAP coding sequence that is 70% homologous to SEQ ID NO: 3, 5 or 7 and having the same functionality thereof, a sequence at least 80% homologous to SEQ ID NO: 4, 6, or 8 and having the same functionality.

Claims 7-9 and 27 were canceled in applicant's response filed November 11, 2003, prior to the issuance of this Office Action. The Examiner acknowledged cancellation of these claims in the Office Action dated February 25, 2004. Accordingly, it is believed that reference to these claims in this ground of rejection was a mere oversight by the Examiner and as such, these claims need not be addressed herein.

Applicant amended claims 1-4 and 36 to delete the language "or part thereof" and amended claims 2-4 and 24 to delete the language regarding the degree of homology. Applicant respectfully submits that the present claim amendments render this ground of rejection moot regarding these claims and request withdrawal of this ground of rejection. Applicant has not surrendered any subject matter of these amended claims because applicant

added new claims 39, 41, and 43, as well as amended claim 24, which are enabled by including a particular SEQ ID NO. Applicant anticipates the Examiner will not reject these new claims on this basis since the Examiner mentioned in the February 25, 2004 Office Action that claims having particular SEQ ID NOs were enabled. See pages 4 and 5 of Office Action dated February 25, 2004 (*stating* that "methods that employ nucleotides sequences encoding pro-PAP (SEQ ID NO:2), mature PAP-S (SEQ ID NO:4), PAP-S  $\alpha$  (SEQ ID NO:6) and PAP-S  $\beta$  (SEQ ID NO:8) and transgenic plants produced by said methods, and chimeric genes comprising said nucleotides are not included in this rejection").

Newly added claims 40, 42, 44, and 45 are also enabled as they possess both a structural and functional element and, as such, enable one of skill in the art to practice the invention. For example, the new claims require 1) a certain percent homology (either nucleic acid or amino acid homology) to enumerated SEQ ID NOs; 2) that the nucleic acid sequence encodes a particular enumerated PAP protein (i.e., mature,  $\alpha$  or  $\beta$  subunit, etc.); and 3) that the protein having the percentage homology inhibits ribosome activity. Amended claims 22 and 37 also possess both a structural and functional element in that the amended claim requires the coding sequence to encode either a precursor PAP or precursor PAP having the C terminal region and such precursor PAP inhibits ribosome activity.

Accordingly, applicant respectfully submits that these and all pending claims satisfy the enablement requirement of 35 U.S.C. § 112, first paragraph. Applicant respectfully requests that this ground of rejection be withdrawn.

**b. Invention Is Adequately Described in the Specification**

The Examiner rejected claims 1-4, 7-9, 27-29, 31, 33 and 35-38 as not adequately described in the specification in such a way to convey to one skilled in the art that at the time the application was filed that the applicant had possession of the claimed invention.

Claims 7-9 and 25-27 were canceled in Applicant's response filed November 11, 2003, prior to the issuance of this Office Action. The Examiner acknowledged cancellation of these claims in the February 25, 2004 Office Action. Accordingly, it is believed that reference to these claims in this ground of rejection was a mere oversight by the Examiner and as such, these claims need not be addressed herein.

Applicant amended claims 1-4 and 36 to delete the language "or part thereof" and amended claims 2-4 and 24 to delete the language regarding the degree of homology. Applicant respectfully submits that the present claim amendments render this ground of rejection moot regarding these claims and request withdrawal of this ground of rejection.

Applicant has not surrendered any subject matter of these amended claims because applicant added new claims 39, 41, 43, and 45, which are adequately supported by the disclosure. The Examiner mentioned in the Office Action that claims drawn to specific nucleotide sequences are supported and would be allowed. *See* page 6 of Office Action dated Feb. 25, 2004 (*stating* that ". . .the specification describes methods that employ nucleotide sequences encoding pro-PAP (SEQ ID NO:2), mature PAP-S (SEQ ID NO:4), PAP-S  $\alpha$  (SEQ ID NO:6) and PAP-S  $\beta$  (SEQ ID NO:8) . . .").

Newly added claims 40, 42, 44, and 45 are supported by an adequate disclosure in the specification and possess both structural and functional elements and, as such, satisfy the requirements for written description as set forth in the Guidelines. For example, the claims possess 1) a certain percent homology (either nucleic acid or amino acid homology) to enumerated SEQ ID NOs; 2) the nucleic acid sequence encoding a particular enumerated PAP protein (i.e., mature,  $\alpha$  or  $\beta$  subunit, etc.); and 3) require that the protein having the percentage homology inhibits ribosome activity. Thus, these claims have both a structural and functional element. Accordingly, Applicant respectfully submits that these newly added claims satisfy the written description requirement of 35 U.S.C. § 112. Applicant respectfully requests that this ground of rejection be withdrawn.

## 2. Claims Are Not Obvious Over Cited Art

Claims 1-4, 22-24, 28-29, 31 and 33-38 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Kanieswski *et al.* (U.S. Patent No. 6,015,940, hereafter "Kanieswski") in view of Baszczynski *et al.* (U.S. Patent No. 5,756,324, hereinafter "Baszczynski").

The Examiner contends that it would have been obvious to one of ordinary skill in the art to use the method of transforming a plant with pokeweed antiviral protein encoding DNA to induce viral resistance as taught by Kanieswski, and to modify that method by incorporating any other PAP-encoding DNA sequence with a cell specific regulatory element to induce cell-specific necrosis. The Examiner notes that one would have been motivated to do so because PAPs are known to induce necrotic effects (protein synthesis inhibiting activities in plants).

Applicant respectfully disagrees that the combination of Kanieswski and Baszczynski would teach or suggest the presently amended claims. The Examiner has not presented a *prime facie* case of obviousness. The present invention is drawn to using PAP to selectively cause necrotic effects to various plant parts of the very plant that it the gene is inserted into. To the contrary, Kanieswski teaches using PAP to render a transgenic plant resistant to viral

infection, that is infection from outside the plant. There is no teaching or suggestion to use PAP to selectively cause necrotic effects in the transgenic plant's own parts. Further Kanieswski does not teach the use of a mature PAP, PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S to affect male sterility, let alone teach the use of PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S to result in the disruption of nematode infection, changes in flower morphology, abscission, seed release, or prevention of trichome development.

Baszczyński discloses a regulatory element that confers microspore – specificity to gene expression and to using such regulatory element to produce transgenic, male-sterile plants; a method for restoring male fertility in the progeny of male-sterile plants; and the use of a microspore-specific regulatory element to protect against viral and insect pests by disrupting the function of the virus or by encoding an insecticidal toxin thereby conferring disease resistance. Baszczyński does not teach the use of a PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S. Nor does Baszczyński teach the use of PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S to result in the disruption of nematode infection, changes in flower morphology, abscission, seed release, or prevention of trichome development as in recited in the presently amended claims.

Thus the combination of Kanieswski and Baszczyński at best would suggest the combined use of the two systems as opposed to applicant's new technique. Further, the combination does teach the use of a mature PAP, PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S to result in the disruption of nematode infection, changes in flower morphology, abscission, seed release, or prevention of trichome development as is recited in the presently amended claims. Nor does the combination of these two references teach the use of PAP-S, PAP-S  $\alpha$ , PAP-S  $\beta$  or a pro-PAP-S to induce sterility. Accordingly, applicant respectfully requests withdrawal of this ground of rejection.

**CONCLUSION**

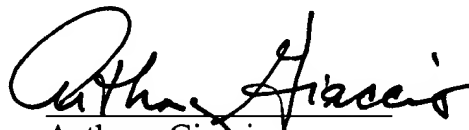
Applicant respectfully submits that all pending claims 1-4, 22-24, 28-29, 31, 33-34, 36-38, and 39-45 are presently in condition for allowance. Prompt and favorable reconsideration and allowance of all pending claims is respectfully requested.

The Commissioner is authorized to charge any fees relevant to this filing to Deposit Account No. 11-0600. The Examiner is invited to contact the undersigned to discuss any matter in this application.

Respectfully submitted,  
KENYON & KENYON

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